

ABSTRACT OF THE DISCLOSURE

A method of an electron energy distribution in a plasma region generated by high-frequency power. In the method, a heating probe is inserted into the plasma region and heated by a current flowing into the plasma region. A pulse voltage having a sufficient shorter period than a thermal time constant of the heating probe is applied to the probe, which emits thermions. The number of the thermions emitted sufficiently increases. The plasma vibration frequency of the emitted thermions is sufficiently higher than the frequency of the high-frequency power. The floating potential of the heating probe therefore follows the high frequency potential existing in the plasma. The floating potential difference between a voltage period of the pulse voltage and a no-voltage period is detected, and an the electron energy distribution in the plasma region is thereby determined.